Missionaries, Colonizers, and Gender Inequality in Africa: Evidence from Protestant Marriage Registers, 1895-2011[1]

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Abstract

European influences on Africa's economic history are heavily debated but hard to document. We use hitherto unexplored data from Protestant marriage registers from historical Kampala to study the educational and occupational performances of Christianized Africans born between the pre-colonial period and today. We find that mission education along with the job opportunities offered by the colonial cash economy ignited a century-long transformation of Kampala, from a rural society to one of urban modernity, and that this involved a *gender Kuznets curve*. That is, men quickly acquired literacy through mission education and rapidly found employment in the wage economy built by the Europeans. Women took somewhat longer to obtain literacy and considerably longer to enter into waged and non-manual (high-status) work. This created a widening gap between men and women's educational and occupational attainments during the early colonial era. But the literacy gender gap vanished before the colonizers, and women's participation in waged and non-manual work gradually rose after 1950 to match men's today.

Keywords: Africa, Colonialism, Development, Gender Inequality, Missionaries, Uganda, Women

JEL Codes: N37, J12, J16, N97

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I

Introduction

How was the economic history of Sub-Saharan Africa shaped by the influence of Europeans? Contemporary data inform us about the long-run effects, but little is known about the short- and medium-term impacts on the educational and occupational performances of African men and women. Most economic historians recognize the difficulties of finding appropriate data to shed light on these matters (Heldring and Robinson 2012). The risk of "compressing the history" of different periods and paths (Austin 2008; Hopkins 2009) has moved interest in Africa's diverse developments away from the macro perspectives (Acemoglu et al 2002; Nunn 2008, 2014) and towards a focus on regional-specific micro data. Recent scholarship has turned to colonial archival data for this, investigating African development trajectories by looking at the evolution in literacy and numeracy skills (Fourie, Ross and Viljoen 2013, Cogneau and Moradi 2014); anthropometric measures (Moradi 2008, 2009; Cogneau and Rouanet 2011); and real wages (de Zwart 2011; Frankema and van Waijenburg 2012; Bowden and Mosley 2012).

The dominance of youthful male labourers among colonial employees, however, makes it difficult to draw conclusions about European influences on broader segments of the population, notably women. To address this issue, we propose a novel empirical approach based on a use of Anglican marriage registers, in this case from the earliest and largest Protestant church in Sub-Saharan Africa, St. Paul's Cathedral in Kampala (Uganda). The detailed vital statistics recorded by Anglican missionaries provide uncharted access to the educational and occupational performances of Christianized African men and women before, during, and after Uganda's colonial era. Our data, consisting of more than 16,000 historical

marriage records, is unusually rich in information regarding women's work, providing unprecedented knowledge about women's education and their formal and informal labour market participation.

The richness of our data, especially regarding information about women's work, allows us to empirically investigate the *female segregation hypothesis* formulated based on work by Boserup (1970) and Rodney (2012). This hypothesis, which builds chiefly on narrative and anecdotal evidence neatly brought together by Akyeampong and Fofack (2012; 2013), holds that African men rapidly entered into formal (waged) employment during the colonial era, facilitated by the education provided by missionaries and the job opportunities offered by the colonial economy. It is holds that women were largely excluded from (or not encouraged to) participate in formal employment, and that, as a result, women in the colonial period did not fully explore the educational opportunities offered by the missionaries. It is argued that post-colonial, male-dominated politics did little to correct these gender imbalances, and hence that the economic marginalization of women we see in today's Africa is a legacy from the colonial era (*ibid*.).

Our sampled birth cohorts, which form a reasonably represention of the general population of Kampala, reach across four distinct eras of Ugandan history: the pre-missionary period (pre-1877); the (intermediate) pre-colonial period (1877-1894); the colonial period (1894-1962); and the post-colonial period (post-1962). We study the gendered performance of the sampled individuals by exploring five distinctive individual features inferred from the recorded information: numeracy skills (from accuracy in age reporting); literacy skills (from signatures on the marriage certificates); working skills (derived from occupational titles using

the HISCLASS scheme); non-manual (high-status) employment (also derived using the HISCLASS scheme), and formal (i.e. waged) employment. We also study the evolution of female labour force participation rates across the four eras of Ugandan history.

We find that the arrival of Christian missionaries, and the subsequent colonial era, dramatically changed the educational and occupational structures of Kampala, initiating a century-long transformation from an entirely rural society to one of urban modernity. We find that this transformation initially amplified gender inequality within those capacities we are able to study. Our sampled male and female populations both underwent a literacy revolution following the arrival of the missionaries, with literacy rates climbing from 0% to almost 100% over less than two generations. But the literacy revolution of women came with a delay of about three decades during which the gender gap in literacy grew substantially. We find similar patterns concerning the gendered acquisition of working skills and employment in non-manual (high-status) and waged work. That is, the early colonial era saw a rapid increase in men's working skills; in their participation in waged work; and in their involvement in non-manual jobs. Women took considerably longer to acquire working skills and to enter into waged and non-manual work. But towards the end of the colonial period, notably after 1950, women had started to catch up (or had already caught up) to men in many of these areas. Strikingly, most of the educational attainments of the sampled men and women, as well as the rising shares of waged and non-manual employment, emerged during the colonial period; the post-colonial period saw much less improvement in these regards.

We thus find strong support for the *female segregation hypothesis* in that the rise of the wage economy did not include women at first. But the view that the gender gaps in education

and waged employment continued or even grew after independence is not sustained: the gender inequalities within most of the areas we study are essentially gone today. Drawing on Simon Kuznets' argument regarding the curvilinear relationship between development and inequality, we find that the development trajectory of Kampala involved a *gender Kuznets curve*.

II

Data and Representation

Before Uganda became a British Protectorate in 1894, the Kingdom of Buganda, situated along the northern shore of Lake Victoria, was a centralized state of feudal structures with a *kabaka* (king) and territorial lordships (chiefs). The greater Mengo area, in which today's Kampala is situated, was the most densely populated region in Buganda, home to some 70,000 *bakopi* (peasants). The Kingdom had traded ivory and slaves for cotton cloth, beads, firearms and gunpowder with Swahili and Arab merchants, with Kampala as the commercial hub of the region (Reid 2002).

The well-controlled peasant population and the fertile soil of the surrounding area made Kampala the principal 'node' of the British Protectorate and thus the location from where the European influences spread. Unlike neighbouring Kenya, Uganda was not a settler economy, and its land remained in the possession of the Ugandans. Instead, the British colonial authority introduced a cash crop economy based on taxation and a law that made cotton a compulsory crop (Youé 1978).

The first urban planning of Kampala (and its then close to 3,000 citizens) came in 1912. Kampala remained a moderate-sized town with less than 50,000 residents until Uganda's

independence in 1962 (Omolo-Okalebo et al 2010). After independence Kampala grew considerably, first to 352,000 residents in 1969, then to 774,241 in 1991. Today Kampala homes over 1.5 million people.

Christianity is by far the most popular religion in Kampala, with nine out of ten declared Christians in 2002 (UBOS 2006). Our data comes from the earliest and largest Christian missionary station in Uganda: the Anglican Church Diocese of Namirembe, established in 1890 and situated in Kampala. The Diocese's original barn church, housing 3,000 people, was destroyed during a thunderstorm in 1894 (Moon 1994) along with some of the earliest marriage records. The church's fast-growing popularity inspired the construction of a new church in 1895 with a seating capacity of 4,000 people. This event marks the starting point of our series of marriage registers, which ends in 2011. The series is complete except that the books covering the years 1899-1907 were lost after lightening set fire to the thatched roof of the church in 1910. Following the fire, the current St. Paul's Cathedral was constructed between 1915 and 1919. This was the largest house of God in sub-Saharan Africa at the time, where some two thousand Christian affiliates gathered every Sunday (Hastings 1994; Taylor 1958).

The detailed and systematic recordkeeping of the Anglican missionaries (as well as their native successors) makes our marriage registers not only a novel source of data in the context of African economic history.[2] They also constitute an outstanding source of information for

[2] Our study is not the first to use vital information from African parish registers; these were previously used to study African population growth. Thornton (1977) has estimated the population of 17th-century Congo by combining the statistics of native baptisms from missionary stations with a reconstruction of the nation's age structure. Katzenellenbogen *et al* (1993) have assessed the changes in mortality at the Western Cape of South Africa based on records of the Moravian Church for cohorts between 1837 and 1909. Notkola and Siiskonen

studying the impact of missionaries and colonizers on the educational and occupational opportunities of native Africans. One of its key advantages is that Anglican missionaries followed the same procedures as their British-based colleagues: even our earliest registers (from the 1890s) are written in English on standardized forms, pre-printed in London and completely identical to those used by parish ministers in Britain.

The registers includes some key vital statistics regarding the spouses, including their names, ages at marriage, civil status, occupational titles, and places of residence. Information about literacy can be inferred from their signatures on the marriage certificate: if a spouse was unable to sign his or her name, then the vicar would write it down, and the illiterate spouse would put a mark to prove his or her consent. While this is of course not a perfect measure of individual literacy achievement, previous work has shown it provides a reasonably good proxy for someone's ability to read and write (Schofield 1973).

Anglican missionaries were not the only Christian missionaries in Uganda. Other missionary societies, such as the White Fathers, the Mill Hill Missionaries, and Verona Fathers also resided. Conservative estimates from the Colonial Blue Books of the Protectorate of Uganda show that roughly two thirds of all Christian marriages in the early twentieth-century Uganda were Catholic marriages (Meier zu Selhausen 2014). Unfortunately, Catholic missionaries did not follow the tradition of their Anglican counterparts of recording the occupational titles of the spouses. This makes a comparison of the occupational performance

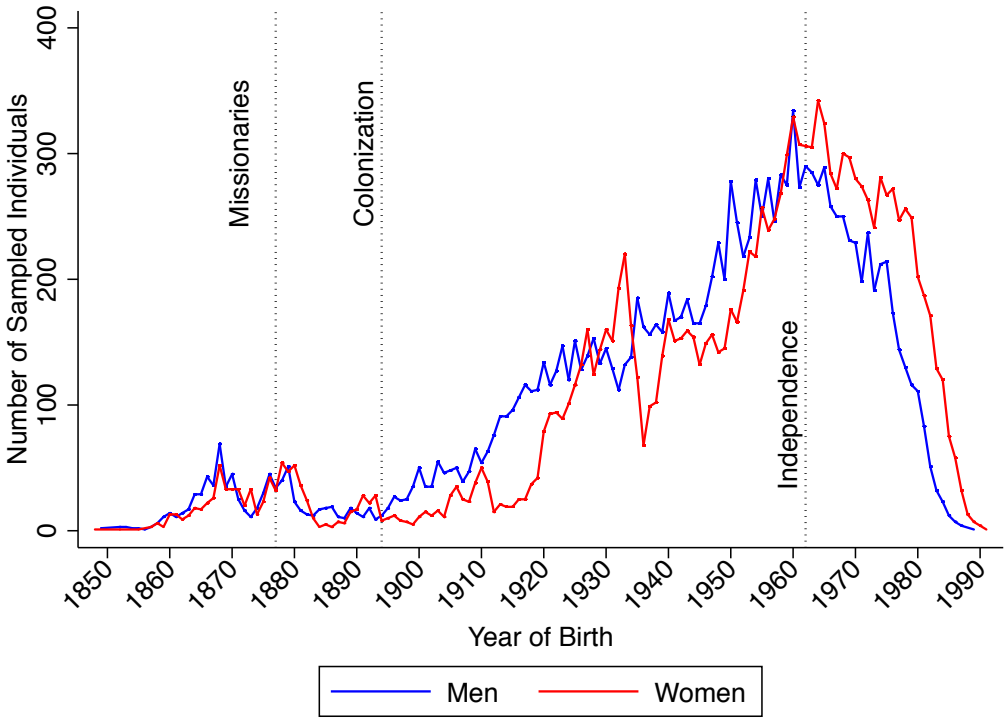
(2000), and Notkola *et al.* (2000) have studied fertility, mortality, and migration in north Namibia using parish registers of the Evangelic-Lutheran Church between 1925 and 1990. More recently, Walters (2008) has used Catholic parish registers for the Mwanza region in northern Tanzania to reconstruct historical families since 1890. None of these works, however, have sought to use educational or occupational information from African parish registers for the purpose of studying the economic history of Africa.

between Catholics and Anglicans impossible in our case. Although Nunn (2014) has shown that contemporary African Protestants (especially women) are better educated than their Catholic counterparts, geography appears to predict educational achievements far better than religious affiliation in our case. Indeed, our sampled individuals look much more like their urban peers, regardless of religious affiliation, than their religious counterparts in rural Uganda (see our discussion below).

Our data include a total of 16,783 marriages taken place between 1895 and 2011. Some of the marriage records were incomplete and hence excluded from the sample. First of all, marriages including either widows or widowers were omitted to avoid multiple entries of the same individual (0.4%). Records of missing signatures information of either spouse (0.1%) were also excluded. Furthermore, a number of spouses (especially among our earliest marriage records) were not recorded to have held an occupation. Those marriages where none of the spouses had an occupation recorded (2%), or where only the wife held one (1%), were excluded from the sample. Conversely, we have proceeded to keep those marriages where only the husband held an occupation (12%); in these cases we have listed the wife as an *imputed* housewife. This is not an innocent assumption, and its implications are discussed at length below. Finally, in some of the recorded marriages (14%), mainly during the 1930s, the spousal ages were replaced by the terms 'Minor' or 'Full', signifying whether or not a spouse had reached the age of 21. These records were excluded from the sample, except when we explore the occupational structures by marriage cohorts. Our findings below are robust to their inclusion under different assumptions about their ages, as well as to their exclusion from the occupational structure analyses.

Figure 1

The Frequency of the Sampled Individuals by Sex and Year of Birth



By limiting the sample to those bachelors and spinsters who had signed the register and had their age reported, and where the husband held an occupation, we end up with a sample size of 12,939 men born between 1849 and 1989 and an identical number of women born between 1848 and 1990. Figure 1 shows the distribution of our (sub-)sampled individuals by their year of birth, and table 1 provide the summary statistics.

Table 1
Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Year of marriage	12939	1970	30.0	1895	2011
Age at marriage, men	12939	30.3	7.00	16	100
Year of birth, men	12939	1945	25.0	1849	1989
Age at marriage, women	12939	23.8	6.40	14	75
Year of birth, women	12939	1952	25.0	1848	1990
Numeracy skills, men	12939	0.75	0.43	0	1
Numeracy skills, women	12939	0.84	0.37	0	1
Literacy skills, men	12939	0.97	0.18	0	1
Literacy skills, women	12939	0.92	0.27	0	1
Working skills, men	12939	0.66	0.47	0	1
Working skills, women	10372	0.50	0.50	0	1
Non-manual work, men	12939	0.70	0.46	0	1
Non-manual work, women	10372	0.56	0.50	0	1
Waged work, men	12939	0.87	0.33	0	1
Waged work, women	10372	0.55	0.50	0	1
Agricultural, men	12939	0.08	0.28	0	1
Agricultural, women	10372	0.03	0.16	0	1
Housewife	12939	0.06	0.24	0	1
Imputed housewife	12939	0.12	0.33	0	1

Note: Numeracy skills measure the tendency *not* to age heap, i.e. not ending one's age on 0 or 5. Literacy skills are inferred from a signature (or lack hereof) on the marriage certificate. Working skills mean holding a medium-skilled or highly-skilled profession according to the HISCLASS scheme (van Leeuwen and Maas 2011). The shares of women in skilled/non-manual/waged/agricultural work do not include housewives or imputed housewives (see text).

The question of sample representation is fundamental for the breadth of our later conclusion. Today's Kampala (the capital city of Uganda) is fully urbanized. So it would be unrealistic to expect that our sample represents the entire Ugandan population, which is largely rural (84% in 2012). But a relevant question is whether our sample represents the

general Kampala population or just the Protestant population, and also if the representation persists across time. Pertinent answers to these questions require detailed information about the year of birth, place of residence, marital status, educational and occupational attainments, and religious affiliation of the general population. Unfortunately, the nature of official Africa statistics offer limited scope to cast light on these matters, placing severe constraints on the prospects of assessing the representation of our sample, especially as we move back in time. Indeed, the very lack of this information is a key motivation for the current research.

Fortunately, the available public statistics are not entirely stripped of information permitting a discussion of the sample's representation. A Ugandan population census was conducted in 2002 by the Ugandan Statistical Office (UBOS 2006). While the census data are of course not completely identical to those contained in our marriage registers, a comparison can nevertheless be done on a number of parameters. Also, the British colonial administration conducted an enumeration of Ugandan company employees in the early 1950s (Uganda 1952). Although the enumeration data are even more restrictive in terms of comparable information than the census data are, they still facilitate a crude comparison regarding some key employment characteristics with those of our sampled individuals.

Using the 2002 census information, we have constructed two comparable sub-samples: one from our marriage registers and one from the census data. The aim is to measure how well the sub-sampled individuals perform in terms of literacy and other educational training. The census data provide individual statistics concerning the year of birth, sex, residency, marital status, literacy status, years of schooling, and religious affiliation in 2002. Residency makes is possible to identify Ugandans living in Kampala that year. The marriage registers

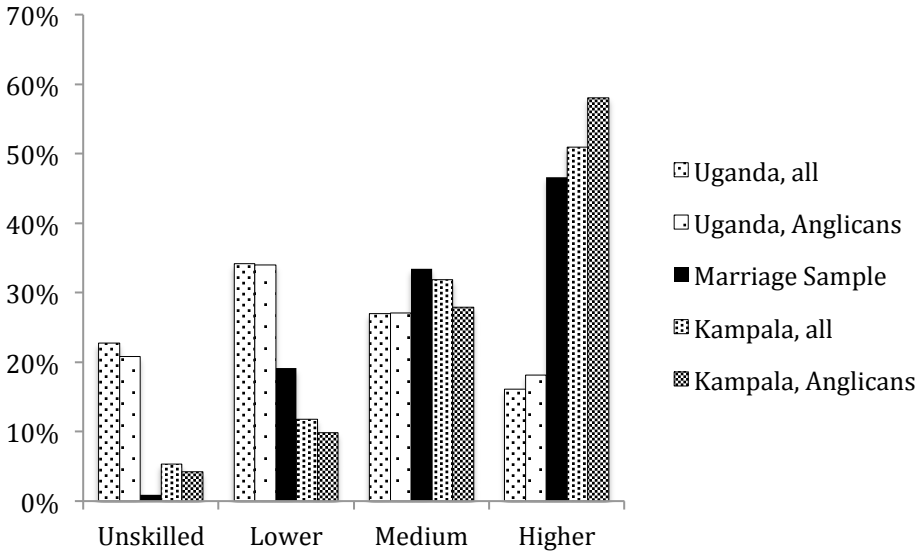
provided largely identical information, except they do not provide the years of schooling (an issue dealt with below).

The two sub-samples are designed so that they include cohorts of births aged 20 to 60 in 2002. This means the sampled men and women were born between 1942 and 1982. Since our marriage sample only consist of married individuals, the census sample is restricted to those whose civil status was 'married' or 'widow'/'widower' in 2002. The census sample is further truncated below depending on the desired target group (i.e. all Ugandans, Kampala residents, Kampala Protestants etc).

The literacy rates (inferred from signatures) of our marriage register sub-sample are 100% for men and 99% for women. The comparable rates of the census sub-sample concerning the entire Ugandan population – 77% for men and 53% for women – demonstrate that our sampled individuals are far more literate than the average Ugandan. This is not a matter of religion: the literacy rates among Anglican Protestant in Uganda as a whole is 79% for men and 56% for women, which is only marginally better than the average Ugandan. The literacy rates of the census sub-sample of Kampala residents – 96% for men and 91% for women – come much closer to the literacy performance of our marriage register sub-sample. Literacy among the census sub-sample consisting of Anglican Protestants living in Kampala is not much different: 96% for men and 92% for women. The discrepancy in literacy rates between Anglican Kampala residents and those of our marriage registers may stem from the fact that signature is an imperfect substitute for literacy. In summary, Kampala residents seem to be reasonably well represented by our sampled individuals in terms of literacy regardless of religious affiliation.

Figure 2

Working Skills of the 2002 Census and the Sample, Men

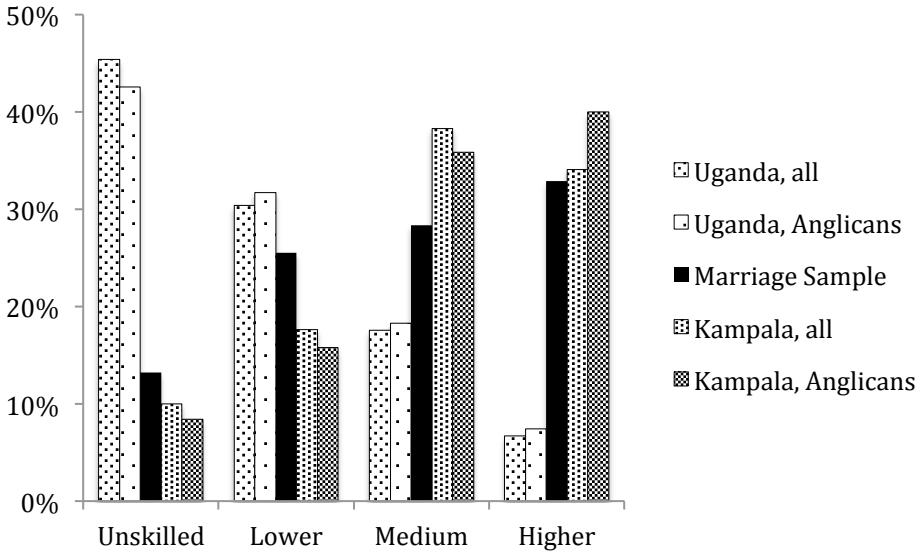


Note: The categorization of working skills is done using the HISCLASS scheme (van Leeuwen and Maas 2011). *Source*: 2002 Census data (UBOS 2006). Marriage sample: see text.

Turning to years of schooling, the two sub-samples do not compare directly. To solve this, we have mapped the available statistics of the two sub-samples into a multi-dimensional measure of working skills. To this end, we have used the HISCLASS scheme (discussed in detail below) to map the occupational titles of the marriage registers into four skill-categories of labourers: highly-skilled, medium-skilled, lower-skilled, and unskilled workers. In a similar fashion, we have mapped the years of education from the census data (ranging from 0 to 14 years of schooling) into the same four skill-categories on the assumption that up to two years of schooling translate into unskilled work; three to six years into a lower-skilled work; seven to 11 years into a medium-skilled work; and finally 11 to 14 years into a highly-skilled work.

Figure 3

Working Skills of the 2002 Census and the Sample, Women



Note: The categorization of working skills follows the HISCLASS scheme (van Leeuwen and Maas 2011). *Source*: 2002 Census data (UBOS 2006). Sample data: see text.

Figures 2 and 3 show the comparative outcomes. Starting with the census sub-sample that we expect comes closest to our marriage sample, it is clear from Figure 2 that Anglican male residents of Kampala are rather well educated: 58% fall in the category of highly skilled, 28% in medium skilled, 10% in lower skilled, and only 4% in the unskilled category. Among the male Anglicans of our marriage registers, there are 47% highly skilled, 33% medium skilled, 19% lower skilled, and 1% unskilled workers. The same pattern applies to women (Figure 3): 40% of Anglican women in Kampala are highly-skilled workers against 33% in our marriage sample; 36% against 28% were medium skilled; 16% against 26% were lower skilled; and finally 8% against 13% were unskilled workers. This conclusion is largely echoed when comparing to any Kampala resident (i.e. regardless of religious affiliation), although the match between our marriage sample and the census data is generally better now.

The vaguely poorer performance of the individuals in the marriage registers relative to the Kampala Anglicans in the census may be an artefact of non-resident couples (supposedly rural dwellers) visiting Kampala for the purpose of marriage. Another matter that would downward-bias the educational performance of our sampled individuals is the fact that we catch them at the time of their marriage, and that the individuals of the census sub-sample are on average caught later in life allowing them to accumulate skills post-marriage. In summary, our sample is a (slightly downward-biased) representation of the educational attainments of Kampala Anglicans and an altogether reasonable representation of the Kampala population as a whole (i.e. regardless of religious affiliation).

Looking at the entire Ugandan population, the educational achievement of the average Ugandan, whether male or female, falls significantly short of our sampled individuals, and hence of Kampala residents in general. The average Ugandan male is most likely lower-skilled, and the average Ugandan female most likely unskilled (Figures 2 and 3). Those conclusions remains when we compare our sample to the average Ugandan Anglican Protestant.

Hence, the overall conclusion based on our comparison with the census data is that our sample is a fair representation of the general population of Kampala today. Also interesting is the fact that our sampled Anglicans share more characteristics with their urban counterparts regardless of religious affiliation then they do with rural Anglicans.

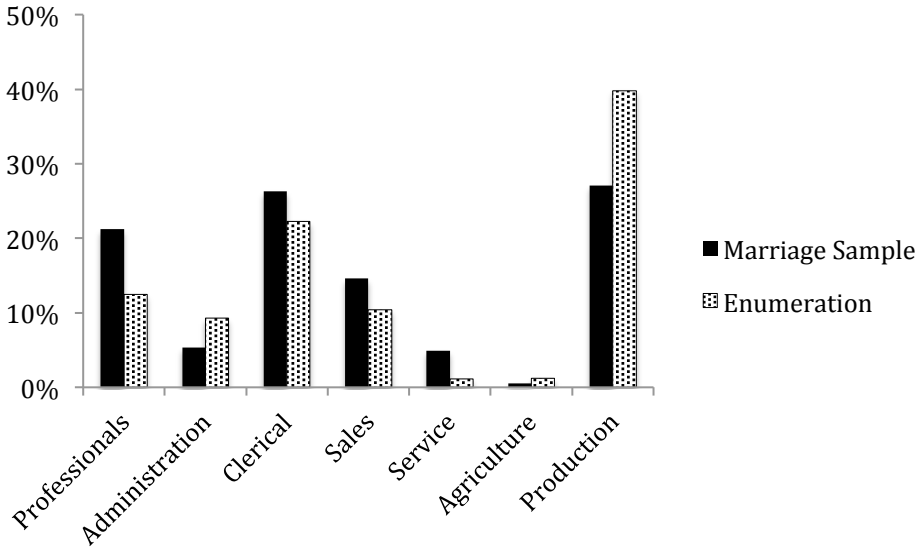
Our comparison with the census data took us back to cohorts born as early as the 1940s. Still, it would be unwise to mechanically assume that our sampled individuals also represent the population of Kampala as we move further back in time. The Enumeration of African

Employees from 1952, however, opens the possibility to run a spot-check comparing early cohorts of birth. The enumeration covers employees from the entire Uganda, but the companies are listed by their municipality of registration. The Municipality of Kampala lists 678 companies employing a total of 29,386 workers. We cannot be certain, of course, that all the employees of Kampala companies were also working and living in Kampala. There is good reason to believe (although we were unable to check this) that most of the enumerated Kampala construction workers were hired by the East African Railways and Harbours Corporation, which build the Ugandan railway between Kampala and the copper mines of Kasese in the 1950s (Grillo 1974). These railway workers lived and worked along the railway sites, and not in Kampala. We have dealt with this issue by excluded all construction workers from the enumeration sample as well as those in the marriage sample.

A further complication is that the enumeration data does not reveal any individual occupational titles. The enumerated employees were subdivided (by the enumerators) into 45 occupational groups. In order to make these comparable to our marriage sample occupations, we have collapsed those 45 occupational groups into seven major occupational groups found in the HISCO scheme (discussed below). We also categorized the occupations contained in our marriage data in this fashion. The seven occupational groups (see Van Leeuwen et al 2002) are: Groups 1: Professional, technical and related workers; Group 2 Administrative and managerial workers; Group 3: Clerical and related workers; Group 4: Sales workers; Group 5: Service workers; Group 6: Agricultural, animal husbandry and forestry workers, fishermen and hunters; Group 7: Production and related workers, transport equipment operators and labourers.

Figure 4

The Occupational Structures of the 1952 Enumeration and the Sample



Note: The categorization of occupations follows the HISCO scheme (van Leeuwen et al 2002). *Source*: Enumeration data (Uganda 1952). Sample data: see text.

To match the enumeration sample, we created a sub-sample of our marriage register individuals consisting of those males whose occupational titles indicated they were waged workers (see the list in the Appendix and the discussion below). We selected the cohorts of birth who were aged 20 and 60 during to the year of the enumeration (i.e. those born between and 1892 and 1932). This left us with a sub-sample of 2,468 individuals.

Figure 4 shows that the occupational structures of the two sub-samples compare reasonably well. The average marriage register individual does slightly better than the average worker in the enumeration, with more of our sampled individuals employed in groups 1, 3, 4, and 5 and less employed in groups 6 and 7 (and 2). The tendency that the enumeration has more individuals employed in groups 7 (production and transport) and less in most other groups could be explained by the issue mentioned above that the headquarters

of production companies were registered in Kampala, but that their employees worked and lived elsewhere.

It is clear from our discussion above about sample representation that a one-to-one comparison is difficult to make. Still, our spot-check approximation builds confidence that our sample is a reasonably good representation of the general population of Kampala, today and in the past, regardless of religious affiliation.

One more issue needs to be dealt with before we can proceed to our analyses. This issue concerns the widespread practice of polygamy in Sub-Saharan Africa (Fenske 2012). Uganda was (and is) no exception (Anderson 2007). This should concern us to the extent that repeated entry, through multiple marriages, would create a bias in our sample. For example, if workers with high-status jobs take more wives than workers with low-status jobs, than the high-status workers will be over-represented in the sample. Worse still, the propensity to polygamy may have changed over time, hence changing the bias of the sample across the period of observation. Interestingly, besides those listed as widow(er)s (which we have removed) there are no recordings of individuals re-marrying in our sample; the remaining spouses were either recorded as 'bachelor' or 'spinster'. This is consistent with the proscription of the Anglican Church against polygamy and divorce, supporting the Church's emphasis on the building of nuclear families (Hastings 1973). This does not imply, however, that polygamy did not take place at all among our sampled individuals; many Ugandan couples celebrated a customary wedding prior to marrying in Christian faith (Hansen 1984). The flipside is that the Church could prevent one or several customary marriages took place following the Christian marriage, a practise often observed among local chiefs (Hastings

1973). Since such behaviour does not bias our sample, polygamy should have no bearings on our findings.

III

Methodology and Findings

This section aims to cast light on the gendered influences of missionaries and colonizers on the educational and occupational performances of the sampled men and women. In addition to literacy and numeracy achievements, we also study the educational and occupational performance of the sampled population by coding their occupational titles according to: the skills required to perform the work; the social status of the work conducted (manual or non-manual work); and the labour market status (formal or informal employment) of the work described by the occupational title.

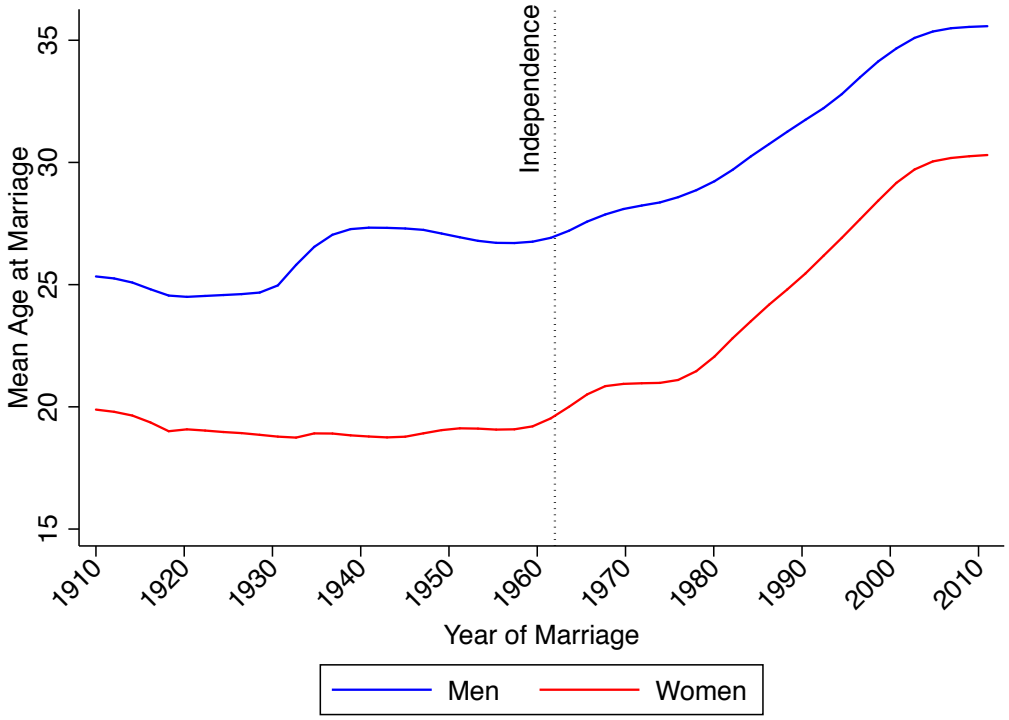
We begin, however, by looking at the marriage patterns. Figure 5 shows the average age at marriage of the sampled men and women by year of marriage.[3] It uncovers two distinct patterns of marriage that link to European historical demography: John Hajnal long ago noticed that for much of the medieval and early modern period in Europe a line drawn from St Petersburg to Trieste demarcated distinctive demographic regimes: in the east, women married young and almost everybody married; in the west, brides were older and celibacy higher (Hajnal 1965). Interestingly, the marriage pattern in the colonial period looks very similar to that of Eastern Europe, with women marrying relatively young (on average below the age of 20) and the spouse age gap being comparatively large. In the post-colonial period,

[3] The average age at marriage of those married between 1848 and 1895 (not shown in the graph) was 29 for men and 23 for women. The comparatively high average age at marriage in this period ows to the fact that the missionaries, on their arrival, accepted belated marriage.

the pattern shifted into something that looked far more like Western Europe, with women (and men) marrying relatively late in life (after age 25), and the spousal age gap becoming smaller.

Figure 5

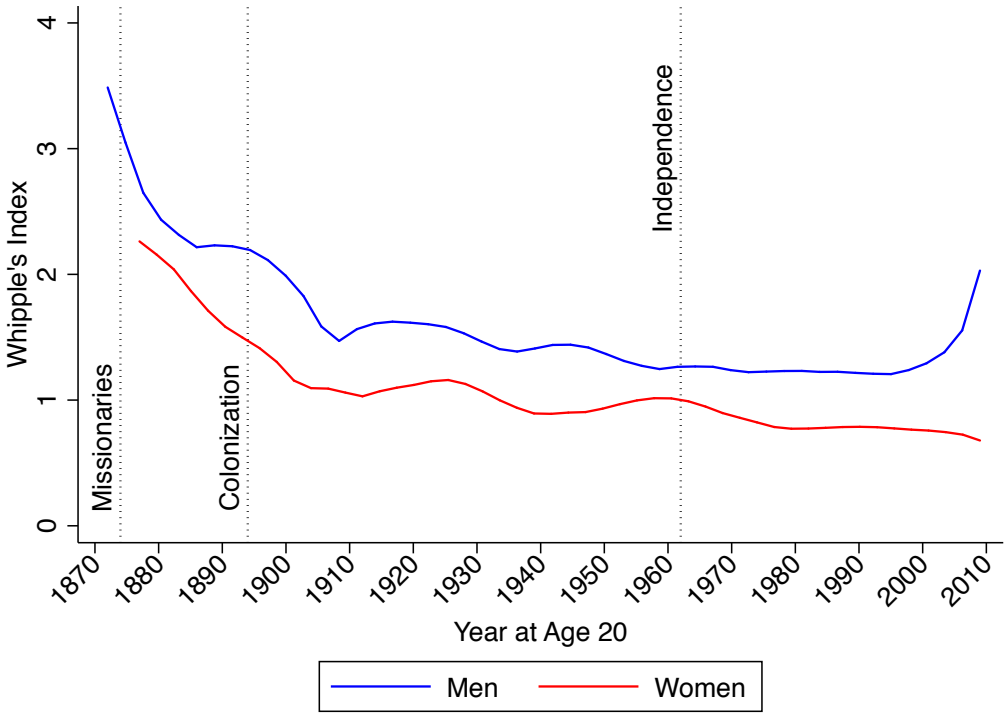
Mean Age at Marriage by Sex



Note: The graph shows the average age at marriage. The small share of indiiduals whose age at marriage was replaced by the terms 'Minor' or 'Full' was excluded from the graph.

Figure 6

Whipple's Index for Numeracy by Sex



Note: The Whipple's Index Score is obtained by summing the number of individuals in the age range 23 and 62 inclusive, who report ages ending in 0 and 5, dividing that sum by the number of individuals between ages 23 and 62 years inclusive, and multiplying the result by 5.

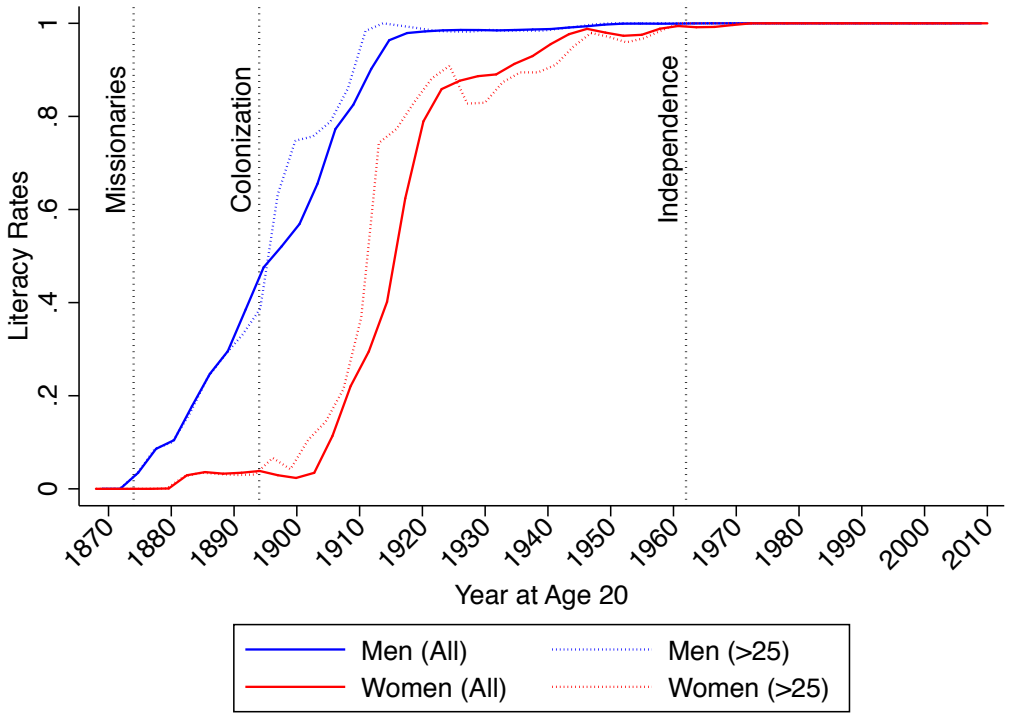
The ages at marriage recorded in the registers were self-reported. This enables us to study numeracy skills and age-heaping behaviour among the sampled men and women. Age heaping, captured by the tendency to end one's age on 0 or 5 (Shryock and Siegel 1976), is not extremely prevalent in the data. Indeed, the overall imprecision in age reporting (measured by the Whipple index) is about 0.9%, which is commonly considered to be highly accurate.[4] Indeed, our sampled individuals are fairly numerate compared to those in other developing

[4] The Whipple Index reports the sum of individuals in the age range 23 and 62 inclusive, who report ages ending in 0 and 5, divided by the number of individuals between ages 23 and 62 years inclusive, and multiplied by 5. See: http://en.wikipedia.org/wiki/Whipple's_index.

regions in this period (Crayen and Baten 2010). Figure 6 shows the Whipple Index by sex. The graph reveals how age heaping is more prevalent among men than women. This could well reflect the fact that women marry younger than men on average, and hence are closer to their year of birth. The graph also shows a gradual improvement over time in average numeracy skills, with a substantial decline in age-heaping after the arrival of missionaries. There is no apparent reason why age heaping increase among men towards the end of our period.

Figure 7

Literacy Rates by Sex



Note: The graph shows the literacy rates by birth cohorts 20 years from birth. Literacy is inferred from the spousal signature (or lack hereof) on the marriage certificate. The dotted lines illustrate the literacy rates among men and women marrying after the age of 25.

Figure 7 shows the literacy rates by sex for cohorts of birth 20 years after their birth. Literacy skills (inferred from signature) were virtually non-existent among cohorts growing

up prior to the arrival of the missionaries in 1877. The rapid spread of literacy, first among men and later among women, is striking: practically all sampled males had attained literacy less than two generations after the first missionaries arrived. Since basic schooling up until the 1950s was more or less entirely provided by missionaries (Frankema 2012), this demonstrates the immense impact of Anglican missionary activities on the elementary education of Christianized Africans.

The sampled women experienced the same rapid rise of literacy as men. But this came with a delay of about three decades. The time elapse led to huge growth in gender inequality in literacy in the period following the arrival of missionaries, as Figure 7 clearly shows. But because women later caught up – their rise in literacy was even slightly faster than that of men – the gender gap swiftly closed and after 1950 was practically non-existent.

One explanation for the delay in women's literacy achievement could be to do with the gender age effects. Women married relatively young during the colonial period (Figure 5), on average around the age of 18. Men married later, around the age of 25. If literacy to begin with was mainly attained between 18 and 25, then this might explain the time elapse. But when we control for this by limiting the sampled individuals to those who marry beyond the age of 25 (this concerned 10% of all women during the colonial period and is captured the dotted lines of Figure 7), it becomes clear that the delay is not explained by age-structure effects.

The huge rise in literacy and numeracy skills following the arrival of missionaries no doubt helped the acquisition of more substantial working skills. This is not to deny that extensive knowledge accumulation took place long before the colonial era. Pre-colonial

training emphasized "learning by doing", with inter-generational transmission of oral traditions and agricultural production skills required to exploit the diverse and complex local ecological environments (Iliffe 2007). But many of those skills were arguably of limited use for the technically versed wage economy that emerged during the colonial era which stressed the importance of literacy and numeracy skills.

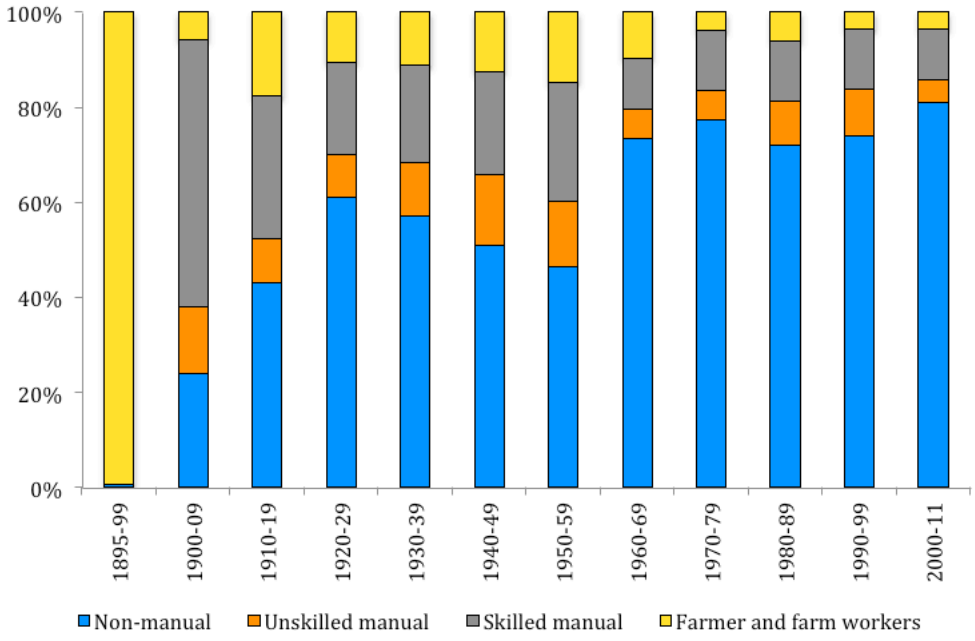
Literacy and numeracy are of course rather crude proxies for workers' ability to conduct their work. More substantial information about the working skills of our sampled population can be derived from their occupational titles. The HISCO/HISCLASS schemes provide useful tools for this. The HISCO scheme, which is a historical extension of the ISCO scheme (for which the International Labour Organization is responsible), classifies several thousand historical occupations from across the world by the nature of the work conducted, and subdivides them into the seven major occupational groups listed above (van Leeuwen et al 2002). Building on this classification of professions, the HISCLASS scheme has been designed to rank the occupations contained in the HISCO scheme by the social status of the work (notably manual verses non-manual work) and by their skill content (van Leeuwen and Maas 2011).

The HISCLASS scheme distinguishes between four levels of aptitude in workers (also used above): unskilled, lower-skilled, medium-skilled, and higher-skilled. Here, to provide a simple illustration of the evolution of working skills across time, we have opted for a broader categorization of skills, collapsing lower- and unskilled workers into what we call 'unskilled' workers, and thus medium- and higher-skilled workers into 'skilled' workers. Drawing on our comparison to the Ugandan 2002 census, being a 'skilled' worker in our terminology is roughly equivalent to having accomplished secondary education, i.e. having completed at least

seven years of schooling. The HISCLASS scheme also subdivides workers into manual and non-manual work based on the occupational title, with separate categories for professions within the agricultural sector. Tables A1 and A2 in the Appendix list the most common occupations in our sample by decade, showing how the occupational titles were deemed (agricultural/non-agricultural, manual/non-manual and skilled/unskilled) in HISCLASS.[5]

Figure 8

Distribution of Occupations by Social Class, Men



Note: The distribution of occupations into the social classes follows the HISCLASS scheme (van Leeuwen and Maas 2011).

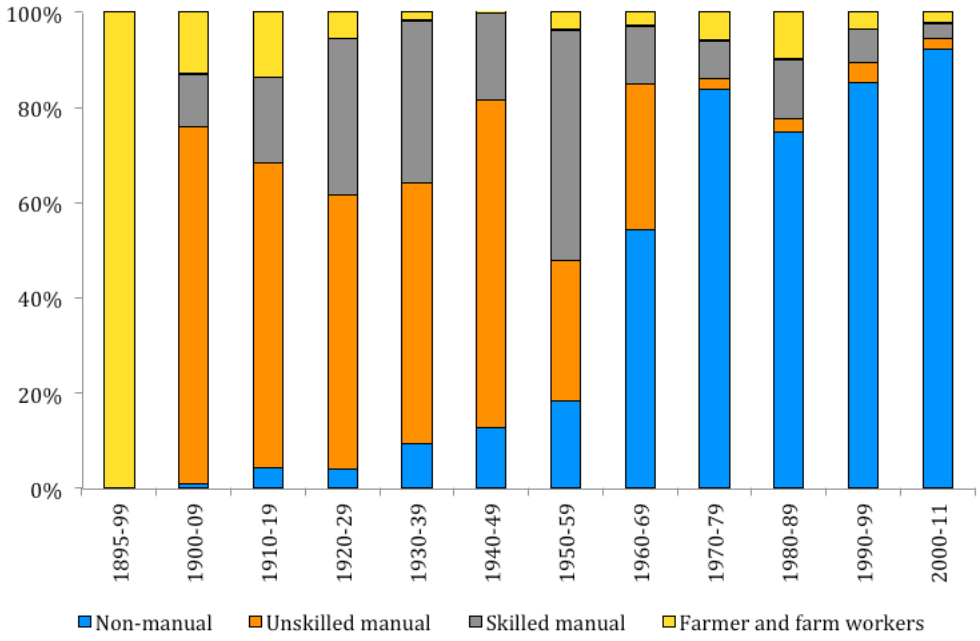
The coding of our occupations enables us to study the basic occupational structures of the sampled population. Figures 8 and 9 show the distribution of occupations for men and women, respectively, by social class. The graphs illustrate several interesting patterns. First,

[5] We are grateful to Marco van Leeuwen, the creator of the HISCO scheme, for annexing our Ugandan occupational titles into HISCO/HISCLASS, which enabled us to extract information about the working skills of our sampled population.

by the time Uganda became a British Protectorate, in 1894, the occupational structures among men and women were almost entirely dominated by agricultural activities (yellow). Practically all males were recorded as 'Peasant' or 'Farmer' (see Table A1). Women were rarely recorded with an occupation; if they were, they were a 'Gardener' or a 'Farmer' (table A2). Second, the decade following the arrival of the British colonizers (i.e. 1900-09) witnessed a dramatic transformation of Kampala's occupational structure. For men, skilled manual work outside of agriculture (grey) increased substantially, ruled by occupational titles such as 'Carpenter' and 'Tailor'. Non-manual work (blue) grew from 1% to a staggering 20%, dominated by jobs such as 'Clerk', 'Teacher', and 'Trader'., and then changed into non-manual work only after colonial independence in the 1960s.

Figure 9

Distribution of Occupations by Social Class, Women

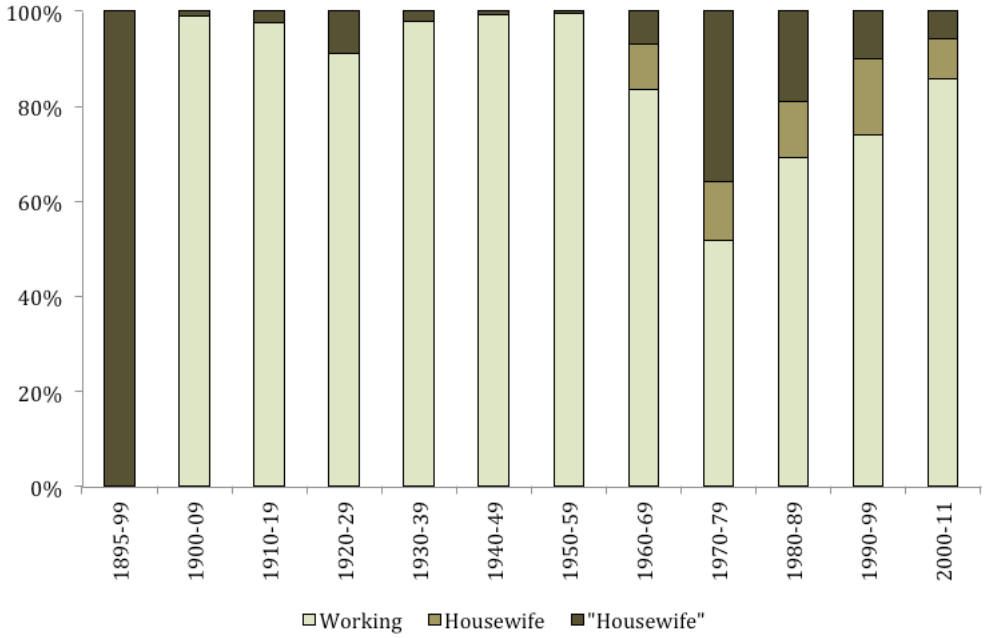


Note: The distribution of occupations into social class follows the HISCLASS scheme (van Leeuwen and Maas 2011). Housewives and imputed housewives were excluded from the sample.

Women's work took a similar direction. But while most men ventured into skilled, manual work shortly after the arrival of the British colonizers, and from there on into non-manual (i.e. high-status) work over the course of the colonial era, most women worked in unskilled, manual work (orange) during most of the colonial period.

Figure 10

Women's Labour Market Participation Rates by Decade



Note: "Housewife" (in citation marks) means the occupation was imputed from the fact that the wife had no occupation recorded while the husband did (see text).

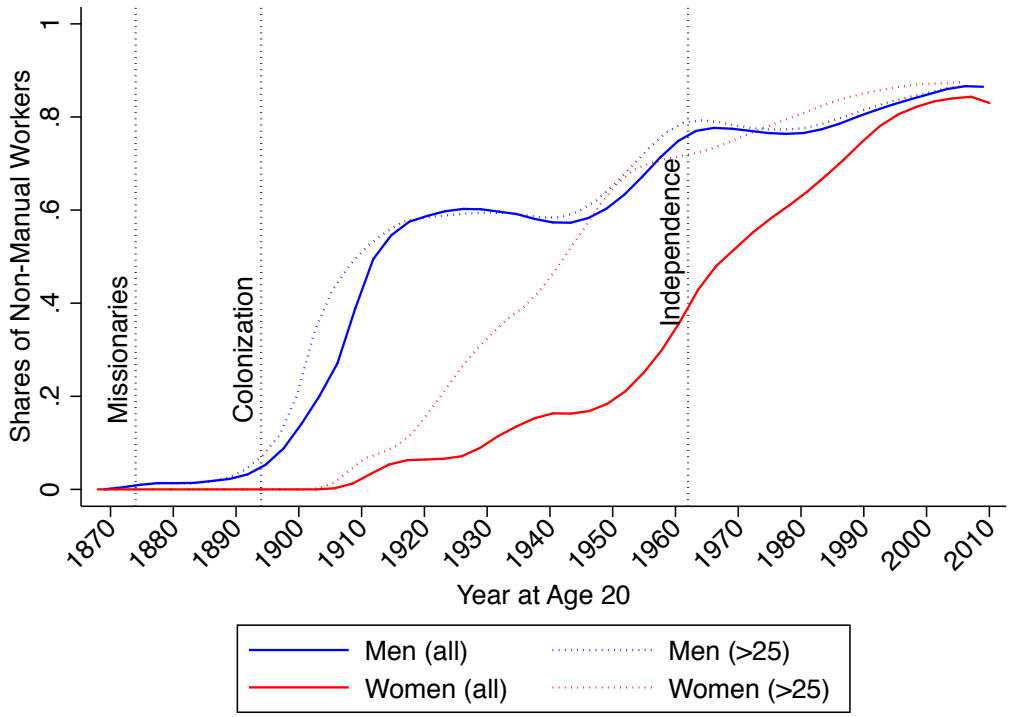
Another interesting pattern comes from studying of the evolution of female labour market participation as it is dictated by the data. Figure 10 shows the share of women *not* recorded as housewives or imputed housewives, and the evolution herein across time. If imputed housewives (dark brown) were actual housewives (which we do not know), then it appears that colonialism greatly incited women to work. It is far more probable, however, that these women where either peasants or gardeners, which would add to the image of pre-

colonial Kampala as a completely rural society. Imputed housewives, along with recorded housewives, enjoyed great popularity after Uganda's independence, peaking during the presidency of Idi Amin the 1970s with 50% of all women labelled 'Housewife' or imputed housewife. It bears evidence of the Amin regime's notoriously campaign against women leaving the realm of the domestic context (Kyomuhendo and McIntosh 2006).

Figure 11 looks deeper into the gendered evolution of social status work. The colonial wage economy hugely increased the share of men engaged in non-manual (high-status) work, reaching 50% of the sampled men in just two decades. Women took much longer to enter non-manual work, with over 80% of all working women still engaged in manual work by 1950. After 1950, and even more so following Uganda's independence, the mounting gender gap in social status inferred from occupations, which occurred during the colonial period, started to disappear. Today, men and women share the same propensity to part in high-status work. Indeed, age-structure effects among females indicating that women marrying after the age of 25 had already caught up to men by the end of the colonial period.

Figure 11

The Share of Manual Workers by Sex



Note: A 'manual' worker is someone who is deemed so according to the HISCLASS scheme (van Leeuwen and Maas 2011). Housewives and imputed housewives are not included.

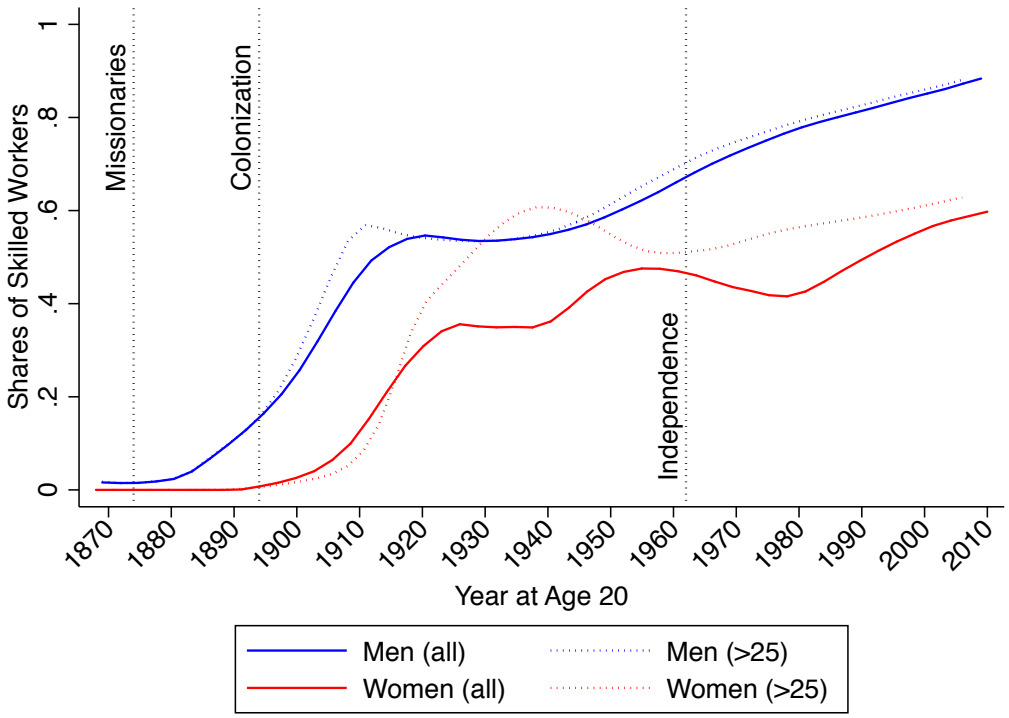
Figure 12 illustrates the share of skilled workers by sex.[6] It shows that 'skills' (covering professions deemed medium- or highly-skilled by the HISCLASS scheme) were very uncommon among men and women growing up before the colonial era. Today, by contrast, the sampled share of skilled workers is rather high, with only one out of ten men and two out of five women coded as 'unskilled'. The premium for skilled work was more as twice as large for male skilled labour than unskilled work in Kampala in the early 1920s, and more than

[6] University students (2%) and chiefs and sub-chiefs (1%) are not coded by the HISCLASS scheme, but we have assumed that all of them are 'skilled' and 'waged' workers HISCLASS also does not classify housewives (19%). These we have left out in Figure 12, but the conclusions based on the illustartion are robust to including the housewives on the (contentious) assumption that they fall in the categories of unskilled workers.

three times in the later 1940s (Frankema & Van Waijenburg 2013). Thus, there were strong wage incentives to acquire those skills, and the first step to achieve those was mission schools (Frankema 2012). Although the share of skilled women was lower than that of men, women largely follow the same pattern of skill-acquisition as their male counterparts, except for an episode of decline during the Idi Amin period in the 1970s. Remarkably, most of the rise in acquisition of skills among men and women was achieved during the early colonial period, emphasizing the role of the Europeans for African human capital accumulation.

Figure 12

The Share of Skilled Workers by Sex



Note: A 'skilled' worker is a worker holding an occupation deemed medium-skilled or highly-skilled according to the HISCLASS scheme (van Leeuwen and Maas 2011). Housewives and imputed housewives are not included. University students (2%) and chiefs and sub-chiefs (1%) are not coded by the HISCLASS scheme, but they appear in the graph coded as skilled workers.

Our occupational titles express more than just working skill and social status. They can also be mapped into waged and unwaged work, helping to cast light on the question about the economic marginalization of women through a study of their participation in the formal labour market. To code our occupations in this regard, we have received assistance from Ugandan labour historians.[7] Extraordinarily, some jobs titles that in a western context would be identified waged work (such as 'Dressmaker' and 'Weaver') indisputably fall in the category of self-employment in Uganda. For women especially, self-employment in historical Uganda meant work carried out in the realm of the domestic sphere, and the good produced sold in a local market place, comprising economic activities of an informal (unwaged) nature. Conversely, female professions such as 'Teacher', 'Nurse' and 'Midwife' are all formal (waged) employment. The same categorization applies to male professions, with 'Accountant', 'Clerk', and 'Teacher' being coded as formal (waged) work, and 'Peasant', 'Farmer', and 'Tailor' being informal (unwaged) work. Tables A1 and A2 in the Appendix show how the bulk of our occupational titles were coded in this regard.[8]

Formal-sector employment among men was surprisingly common before Uganda's independence (table A1), with three out of four men on average employed in wages work during the colonial period. Almost one in five males worked as 'Clerk' for the missionary society, the colonial administration, or for private companies owned by Europeans. Among the most common occupations during the post-colonial period were 'Accountant',

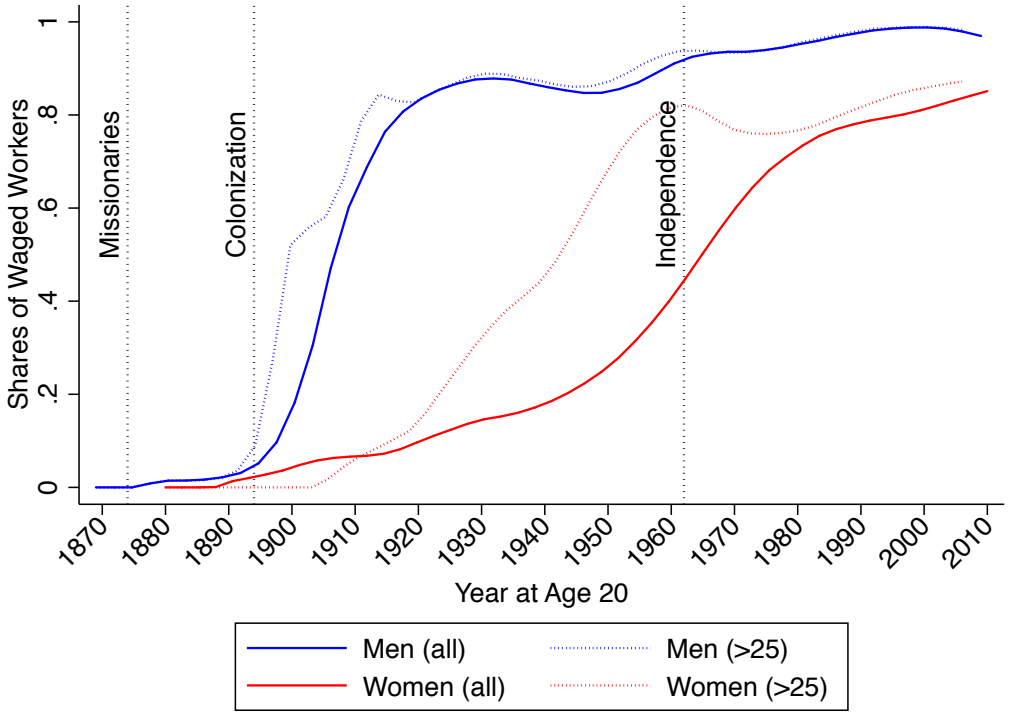
[7] We are particularly thankful to former Ugandan Minister of Education, Prof Edward Rugumayo, for his help with coding our occupations into waged and unwaged work.
[8] 'Chief' and 'Sub-chief' (1%) are mapped into waged professions, as local chiefs were usually on the colonial administration's payroll receiving a salary for local tax collection (http://www.buganda.com/buga1900.htm). The 'University student's (2%) were coded into unwaged work. Our later conclusions are robust to the exclusion of chiefs and university students.

'Businessman', and 'Teacher', and in this period nine out of ten men were engaged in formal work on average.

Among women, 'Tailor', 'Mat maker', 'Weaver' and 'Housewife' occupied three out of four women during the colonial period. The work carried out in those professions took place in the realm of the household and is considered as informal (unwaged) employment (Kyomuhendo and McIntosh 2006). Women who worked for a wage during the colonial period (on average one out of ten) were mainly employed as 'Nurse', 'Midwife', and 'Teacher'. Because schools and hospitals were run by the missionaries in this period (Kyomuhendo and McIntosh 2006), waged women were virtually always working for the missionary society, and hardly ever in private companies or for the colonial administration (Meier zu Selhausen 2014). This chimes with Boserup's supposition that the European rarely employed African women (Boserup 1970). We also know from other studies that the missionaries encouraged their nurses and teachers continue working after marriage and motherhood (Kyomuhendo and McIntosh 2006). While our records shed no light on post-marital employment, we can see women employed by missionaries married significantly later in life (on average around four years) than women coded to work in the informal economy (Meier zu Selhausen 2014). Among the most common occupations for women during the post-colonial period were 'Businesswoman', 'Secretary', and 'Teacher', which, together with 'Housewife' and imputed housewife, on average occupied one out of two women.

Figure 13

Share of Workers in Waged Employment by Sex



Note: Housewives and imputed housewives are excluded.

Figure 13 illustrates the evolution in the shares of men and women employed in waged work. The graph shows not only the remarkable transformation of Kampala, from a largely informal society to one building almost entirely on formal (waged) employment. Figure 13 clearly shows how men rapidly found their way into formal-sector jobs after colonisation: in less than two decades, the share of formally-employed men rose dramatically, from less than 10% to nearly 90%. Men in waged employment before Uganda became British were employed by the missionary society as 'Teacher' or 'Clerk (table A1).

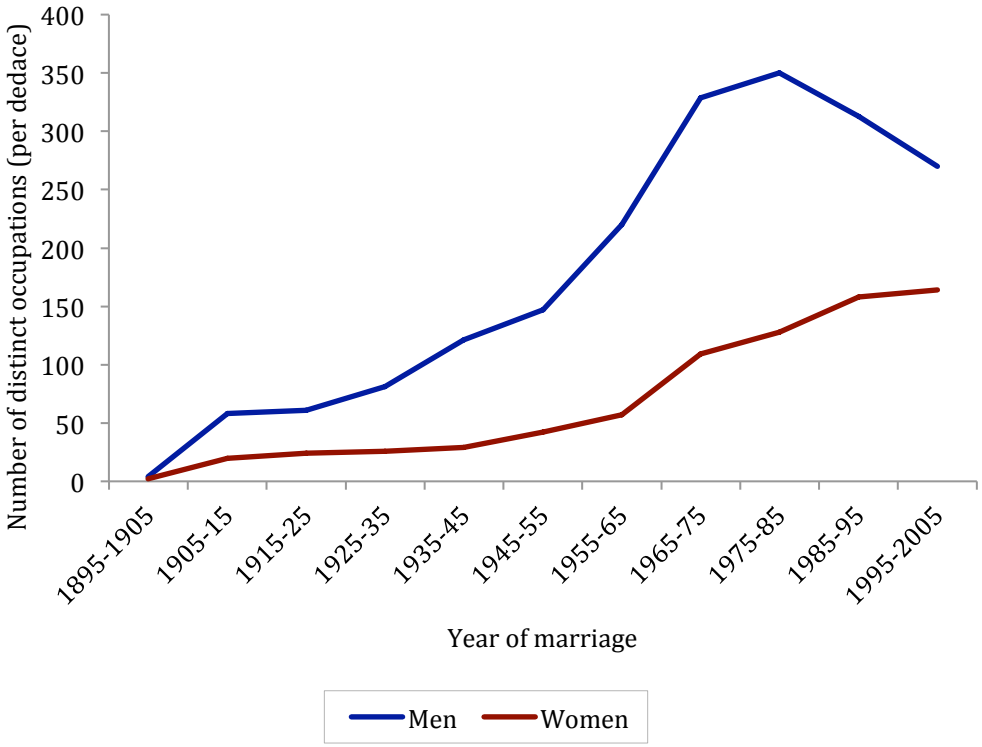
Figure 13 also shows that the colonial period witnessed fast-growing gender inequality linked with an economic marginalization of women: as late as the 1940s, some 50 years into

the colonial are, only 20% of the sampled women were employed in formal work against 80% men. The reason for this is not that women did not work: only 12% were recorded as 'Housewife' or imputed housewife during the colonial period. It rather means the bulk of women earned a living *outside* of the formal labour market in this era, supporting the widespread view (Boserup 1970; Rodney 2012) that women did not partake in the waged economy set up by the Europeans, not even several decades after the waged labour market emerged.

It is also commonly argued (see Akyeampong and Fofack 2012, 2013) that the gender inequality legacy of the colonial era was sustained in the post-colonial period, with male-dominated politics doing little to correct the gender imbalances. Our data tell a rather different story. After 1950, shortly before Uganda's independence, the share of women employed in formal-sector jobs began to increase, growing from 20% in 1950 to reach an astonishing 80% today. The dotted lines of Figure 13 show that when we control for age-structure effects, looking only at spouses over the age of 25 (82% men and 41% women), the closing of the gender gap was not only very rapid; much of it also took place even within the colonial period. While it is true that a gender gap in waged employment still remains, the size of the gap is far smaller today than what it was during early parts of the colonial era.

Figure 14

Decadal Number of Distinctly Different Job Titles by Sex



We can also use our recorded occupations to study the development in job diversity. Job diversity differed considerably between men and women. Figure 14 shows the number of distinct job titles by decade and sex, illustrating the long-term evolution in the gendered possibilities for job specialization and division of labour. The number of distinct male professions rose by more than 25 fold during the colonial era, from six distinct types of jobs around the time when Uganda became British, to more than 150 job titles towards the end of the colonial period. Women's job diversity grew only eight fold over the same period, from three different professions in the late nineteenth century to slightly more than 25 different jobs in the 1660s. The vast rise in job diversity for men, but not for women, enlarged the gender gap in job opportunities in the run up to independence, a conclusion lending further

support to the Boserupian idea that colonial rule had a labour-market segregation effect on women (Boserup 1970).

Although the job diversity gap continued to grow also after independence, it is interesting to note that the post Idi Amin period (i.e. after the 1970s) witnessed declining gender inequality in job diversity. The closing of the gap was, however, caused not so much by growth in the number of female occupational titles, rising to around 150 different occupations among today's women. The gap narrowed mainly by declining job diversity among men: from its peak of over 350 different job titles per decade during the Idi Amin period (i.e. 1971-79) today there are 250 male job titles represented by the sampled men.

The structural transformation of Kampala occupations is also visible in Tables A1 and A2. Not only does increased job variety mean that the ten most common occupations of men and women generally cover a declining share of the population (from everyone in the late nineteenth century to around 60% today). The nature and status of the most common occupations also change across time, with more worked being skilled, waged, and non-manual work, first among men and later women. Jobs like 'Banker', 'Accountant', 'Doctor', 'Engineer', 'Technician', and 'University student' have gradually replaced traditional occupations such as 'Farmer', 'Gardener', 'Mat maker', and 'Tailor'. What took Western societies several centuries to achieve, Kampala accomplished within one century, sparked by the arrival of the Europeans. It is often thought that 'While some development occurred under colonial rule, European administration did not kick-start modern economic growth' (Allen 2011). Our data from Kampala thus appear as a case against the common view.

As a last exercise, we can try to use a Probit model to highlight some of those individual characteristics that associate entry into waged employment. Tables 2 and 3 show the gendered results of regressing the likelihood on holding a waged profession on some key individual characteristics from the marriage registers: literacy skills, numeracy skills, and working skills, as well as age at marriage and a dummy capturing the couples whose marriage age gap is more than ten years. It is important to stress that waged work is not necessarily better paid or indeed more prestigious than non-waged work. There is also no direct mapping from a skilled worker to a waged worker. For example, being a 'Businessman' (skilled, unwaged, and non-manual work) has higher social status according to the HISCLASS scheme than a 'Mechanic' (unskilled, waged, and manual work). Also, being a 'Farmer' (skilled, non-waged, and manual work) could well be more profitable than being a 'Clerk' (unskilled, waged, and non-manual work).

One of the striking conclusions of the regression analyses (Tables 2 and 3) is the gendered association between age at marriage and the likelihood of waged employment. For men, late marriages during the post-colonial period means significantly *lower* chances of waged employment (Table 2, Column 3). However, if we re-run the analysis limiting the sample to men marriage before the age of 50, then the significance disappears; indeed, much of this age effect is driven by comparatively old bachelors who work as 'Peasant' or 'Farmer'.

Table 2
The Determinants of Waged Work, Men

Probit model Outcome: Waged work	Full period	Colonial period	Post-colonial period
Age at marriage	-0.0126*** (-3.77)	0.00356 (-0.51)	-0.0172*** (-4.49)
Numeracy skills	0.113*** (-2.75)	0.0872 (-1.42)	0.146*** (-2.64)
Literacy skills	0.801*** (-4.62)	0.826*** (-4.79)	. .
Working skills	0.809*** (-21.67)	0.697*** (-12.39)	0.897*** (-17.94)
Spousal age gap > 10 years	-0.0154 (-0.31)	-0.0117 (-0.14)	-0.0907 (-1.42)
Marriage year fixed effects	YES	YES	YES
Observations	12790	3692	9098
Pseudo R-squared	0.070	0.312	0.070

Note: Numeracy skills measures the tendency *not* to age heap, i.e. *not* ending one's age on 0 or 5. Literacy is inferred from the spousal signature (or lack hereof) on the marriage certificate. Working skills means being medium-skilled or highly-skilled according to the HISCLASS scheme (van Leeuwen and Maas 2011). *t*-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

For women (Table 3), late marriages have the opposite to that of men, increasing the likelihood of waged employment. This conclusion should be considered with some care. The point estimate says nothing about causality: a woman holding a waged profession might be

more likely to delay her marriage in order to keep her job and hang on to the economic independence it entails (a matter of agency). This means the decision to marriage and the decision to between in waged work may be taken simultaneously, raising issues of endogeneity. Still, if women continued to work after marriage, which the Anglican Church encouraged (Kyomuhendo and McIntosh 2006) then we would not necessarily expect women in waged employment to delay their marriage. Also on the effect of marriage, our data shows that women who are much younger than their husbands are less likely to work for wages (even after we control for age at marriage) consistent with work by Carmichael (2011) linking the size of the spousal age gap to female disempowerment. Not surprisingly, that effect is not significant for men.

Literacy skills, numeracy skills, and working skills all have an expected positive correlation with waged employment. Of course, the question about endogeneity also applies to literacy, numeracy, and workings skills. Still, literacy and numeracy were arguably achieved relatively early in life (missionary schooling was normally for children below the age of 15). So the decision to acquire those skills was most probably made by the parents, making these variables independent of the children's later decision between waged and unwaged work.

Table 3
The Determinants of Waged Work, Women

Probit model Outcome: Waged work	Full period	Colonial period	Post-colonial period
Age at marriage	0.0472*** (-14.62)	0.134*** (-14.55)	0.0347*** (-10.1)
Numeracy skills	0.227*** (-5.45)	0.181** (-2.07)	0.208*** (-4.31)
Literacy skills	0.649*** (-2.92)	0.898*** (-3.27)	0.798 (-1.15)
Working skills	1.007*** (-30.71)	1.575*** (-19.03)	0.882*** (-24.24)
Spousal age gap > 10 years	-0.390*** (-11.08)	-0.289*** (-3.68)	-0.412*** (-10.34)
Marriage year fixed effects	YES	YES	YES
Observations Pseudo R-squared	11509 0.192	3274 0.374	8235 0.192

Note: Numeracy skills measures the tendency *not* to age heap, i.e. *not* ending one's age on 0 or 5. Literacy is inferred from the spousal signature (or lack hereof) on the marriage certificate. Working skills means being medium-skilled or highly-skilled according to the HISCLASS scheme (van Leeuwen and Maas 2011). Housewives and imputed housewives are not included. *t*-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Not surprisingly, literacy skills were highly decisive for waged employment during the colonial period for men and women alike. Even after controlling for the influence of working skills on the chances of waged employment, the literacy effect highlights the importance of

missionary education during the colonial period as a means to help Africans enter into the formal economy. Literacy skill played no significant role during the post-colonial period when most individuals were literate anyway (indeed, all sampled men were literate after independence).

Numeracy skills, captured by the propensity *not* to age-heap (i.e. to not report an age ending on 0 or 5), are more crucial for waged work among women than men. The negative effect of the lack of numeracy skills is particularly strong during the post-colonial period, showing how people who age-heaped were significantly more likely to engage in informal (unwaged) work than their numerate counterparts. Working skills and waged work are also positively linked, both the colonial and post-colonial periods, and for men and women alike.

IV

Conclusion

Using hitherto unexplored data from Anglican marriage registers in Kampala covering the colonial and post-colonial eras, this paper has looked at the gendered impact of the arrival of missionaries and rise of the colonial economy on the educational and occupational performances of Christianized Africans. We have drawn two main conclusions based on our analyses of the data.

On the one hand, we find ample support for the *female segregation hypothesis* that women lacked behind their male counterparts who quickly acquired literacy from mission education and rapidly entered into formal (waged) and high-status (non-manual) employment. Although a modest share of women was engaged in formal jobs offered by the

missionary society, they hardly ever worked for other Europeans during the colonial era. Instead they kept to work that took place in the realm of the domestic sphere (i.e. informal jobs). Consistent with these conclusions, we observe a huge increase in gender inequality and an economic marginalization of women in terms of stagnating literacy skills, working skills, and employment in waged and non-manual (high-status) work, at least during the early part of the colonial era. Whether the segregation of women was caused by the colonial rulers (levying taxing on men and offering them jobs to pay their taxes), or whether it was native African men who did not allow their women to work outside the household, are questions our data cannot shed light on. Previous studies have emphasized that gender inequality existed already prior to the arrival of missionaries and colonizers in terms of limited social and physical mobility of women (Hattersley 1908; Roscoe 1911). But even if gender inequality did not emerge with the Europeans, it certainly augmented the imbalances between men and women concerning educational and occupational opportunities.

On the other hand, our data reject the hypothesis that gender inequalities in educational and occupational performances persisted or even increased after colonial independence. From the late colonial period onwards, women gradually caught up to their male counterparts in practically all the areas in which we are able to measure them, i.e. concerning literacy, working skills, and entry into waged and non-manual work. Our data also provide numerical support to a temporary economic marginalization of women during the Idi Amin presidency in the 1970s, with a substantial share of women not recorded to have participated in formal or informal labour markets. By today, however, the gaps we observe between men and women are either closed or certainly much smaller than they were during early parts of the colonial era. We thus find that the century-long economic transformation of Kampala, from a

rural society to a modern economy, entailed a *gender Kuznets curve*, with rising gender inequality during early stages of development, but declining inequality during later stages.

Future research into the economic history of Sub-Saharan Africa may benefit from "following the cross" for insights into the national and regional differences in educational and occupational performances of Christianized Africans during the colonial and post-colonial eras.

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Appendix

Table A1

The Ten Most Common Occupations and Their Coding, Men

2000-10	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Businessman	0	0	1	0	432	15.0	15.0
2	Teacher	0	0	1	1	276	9.6	24.5
3	Accountant	0	0	1	1	269	9.3	33.8
4	Engineer	0	1	1	1	190	6.6	40.4
5	Farmer	1	1	1	0	110	3.8	44.2
6	Banker	0	0	1	1	100	3.5	47.7
7	Doctor	0	0	1	1	79	2.7	50.4
8	Driver	0	1	0	1	78	2.7	53.1
9	Technician	0	0	1	1	74	2.6	55.7
10	Marketer	0	0	0	1	59	2.0	57.7

1990-99	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Businessman	0	0	1	0	297	15.6	15.6
2	Teacher	0	0	1	1	203	10.7	26.3
3	Driver	0	1	0	1	101	5.3	31.6
4	Accountant	0	0	1	1	100	5.3	36.8
5	Farmer	1	1	1	0	94	4.9	41.8
6	Engineer	0	1	1	1	80	4.2	46.0
7	Technician	0	0	1	1	64	3.4	49.3
8	Banker	0	0	1	1	56	2.9	52.3
9	Doctor	0	0	1	1	47	2.5	54.7
10	Civil Servant	0	0	0	1	43	2.3	57.0

1980-99	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Businessman	0	0	1	0	349	16.9	16.9
2	Farmer	1	1	1	0	188	9.1	26.0
3	Teacher	0	0	1	1	133	6.4	32.4
4	Accountant	0	0	1	1	117	5.7	38.1
5	Driver	0	1	0	1	101	4.9	42.9
6	Technician	0	0	1	1	82	4.0	46.9
7	Mechanic	0	1	1	1	65	3.1	50.1
8	Clerk	0	0	0	1	63	3.1	53.1
9	Trader	0	0	1	1	58	2.8	55.9
10	Banker	0	0	1	1	57	2.8	58.7

1970-99	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Businessman	0	0	0	0	247	14.2	14.2
2	Clerk	0	0	1	1	115	6.6	20.7
3	Accountant	0	0	0	1	106	6.1	26.8
4	Teacher	0	0	1	1	104	6.0	32.8
5	Farmer	1	1	1	1	81	4.6	37.4
6	Trader	0	0	1	0	61	3.5	40.9
7	Salesman	0	0	1	1	59	3.4	44.3
8	Mechanic	0	1	0	1	54	3.1	47.4
9	Driver	0	1	1	1	43	2.5	49.8
10	Gardener	0	1	0	1	43	2.5	52.3

1960-99	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
	Clerk	0	0	0	1	172	15.7	15.7
2	Teacher	0	0	1	1	152	13.9	29.6
3	Farmer	1	1	1	0	68	6.2	35.8
4	Trader	0	0	1	1	58	5.3	41.1
5	Salesman	0	0	0	1	48	4.4	45.5
6	Mechanic	0	1	1	1	30	2.7	48.2
7	Accountant	0	0	1	1	28	2.6	50.8
8	Driver	0	1	0	1	24	2.2	53.0
9	Shopowner	0	0	1	0	21	1.9	54.9
10	Policeman	0	0	1	1	20	1.8	56.7

1950-59	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Clerk	0	0	0	1	294	16.7	16.7
2	Farmer	1	1	1	0	220	12.5	29.1
3	Teacher	0	0	1	1	157	8.9	38.0
4	Trader	0	0	1	1	141	8.0	46.0
5	Builder	0	1	0	1	126	7.1	53.1
6	Carpenter	0	1	1	1	126	7.1	60.3
7	Mechanic	0	1	1	1	84	4.8	65.0
8	Tailor	0	1	1	0	79	4.5	69.5
9	Driver	0	1	0	1	66	3.7	73.3
10	Medical assistant	0	0	0	1	34	1.9	75.2

1940-49	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Clerk	0	0	0	1	253	19.5	19.5
2	Trader	0	0	1	1	132	10.2	29.7
3	Farmer	1	1	1	0	127	9.8	39.5
4	Teacher	0	0	1	1	121	9.3	48.8
5	Carpenter	0	1	1	1	83	6.4	55.3
6	Driver	0	1	0	1	71	5.5	60.7
7	Builder	0	1	0	1	64	4.9	65.7
8	Mechanic	0	1	1	1	43	3.3	69.0
9	Medical assistant	0	0	0	1	40	3.1	72.1
10	Tailor	0	1	1	0	32	2.5	74.5

1930-39	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Clerk	0	0	0	1	198	19.8	19.8
2	Trader	0	0	1	1	105	10.5	30.3
3	Teacher	0	0	1	1	84	8.4	38.7
4	Farmer	1	1	1	0	79	7.9	46.6
5	Driver	0	1	0	1	58	5.8	52.4
6	Carpenter	0	1	1	1	45	4.5	56.8
7	Policeman	0	0	1	1	42	4.2	61.0
8	Chief	0	0	1	1	40	4.0	65.0
9	Medical assistant	0	0	0	1	31	3.1	68.1
10	Tailor	0	1	1	0	29	2.9	71.0

1920-29	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Clerk	0	0	0	1	139	22.6	22.6
2	Teacher	0	0	1	1	83	13.5	36.2
3	Trader	0	0	1	1	67	10.9	47.1
4	Medical assistant	0	0	0	1	36	5.9	52.9
5	Carpenter	0	1	1	1	33	5.4	58.3
6	Driver	0	1	0	1	33	5.4	63.7
7	Farmer	1	1	1	0	26	4.2	67.9
8	Servant (peasant)	1	1	0	0	26	4.2	72.2
9	Tailor	0	1	1	0	22	3.6	75.7
10	Chief	0	0	1	1	19	3.1	78.8

1910-19	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Clerk	0	0	0	1	89	17.0	17.0
2	Tailor	0	1	1	0	79	15.1	32.1
3	Servant (peasant)	1	1	0	0	65	12.4	44.5
4	Teacher	0	0	1	1	39	7.4	51.9
5	Chief	0	0	1	1	34	6.5	58.4
6	Carpenter	0	1	1	1	32	6.1	64.5
7	Trader	0	0	1	1	30	5.7	70.2
8	Sub-chief	0	0	1	1	19	3.6	73.9
9	Farmer	1	1	1	0	13	2.5	76.3
10	Soldier	0	1	0	1	11	2.1	78.4

1900-09	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Tailor	0	1	1	0	63	29.3	29.3
2	Trader	0	0	1	1	26	12.1	41.4
3	Teacher	0	0	1	1	18	8.4	49.8
4	Carpenter	0	1	1	1	17	7.9	57.7
5	Barkclothmaker	0	1	0	0	16	7.4	65.1
6	Clerk	0	0	0	1	10	4.7	69.8
7	Chief	0	0	1	1	9	4.2	74.0
8	Servant (peasant)	1	1	0	0	9	4.2	78.1
9	Bricklayer	0	1	1	1	6	2.8	80.9
10	Blacksmith	0	1	1	1	5	2.3	83.3

1895-99	Male Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Servant (peasant)	1	1	0	0	389	73.4	73.4
2	Peasant	1	1	0	0	130	24.5	97.9
3	Chief	0	0	1	1	5	0.9	98.9
4	Teacher	0	0	1	1	3	0.6	99.4
5	Farmer	1	1	1	0	2	0.4	99.8
6	Clerk	0	0	0	1	1	0.2	100.0
7	-	-		-	-	-	-	-
8	-	-		-	-	-	-	-
9	-	-		-	-	-	-	-
10	-	-		-	-	-	-	-

Table A2

The Ten Most Common Occupations and Their Coding, Women

2000-10	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Teacher	0	0	1	1	369	12.8	12.8
2	Businesswoman	0	0	1	0	314	10.9	23.7
3	Housewife	0	0	0	0	194	6.7	30.4
4	Accountant	0	0	1	1	172	6.0	36.3
5	Nurse	0	0	1	1	141	4.9	41.2
6	"Housewife"	0	0	0	0	128	4.4	45.6
7	Farmer	1	1	1	0	126	4.4	50.0
8	Secretary	0	0	0	1	112	3.9	53.9
9	Banker	0	0	1	1	109	3.8	57.7
10	Administrator	0	0	1	1	91	3.2	60.8

1990-99	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Teacher	0	0	1	1	291	15.3	15.3
2	Housewife	0	0	0	0	255	13.4	28.7
3	"Housewife"	0	0	0	0	157	8.3	36.9
4	Businesswoman	0	0	1	0	151	7.9	44.9
5	Secretary	0	0	0	1	123	6.5	51.3
6	Accountant	0	0	1	1	76	4.0	55.3
7	Tailor	0	1	1	0	62	3.3	58.6
8	Nurse	0	0	1	1	59	3.1	61.7
9	Farmer	1	1	1	0	56	2.9	64.6
10	University student	0	0	1	0	42	2.2	66.8

1980-99	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	"Housewife"	0	0	0	0	336	16.3	16.3
2	Housewife	0	0	0	0	208	10.1	26.3
3	Teacher	0	0	1	1	192	9.3	35.6
4	Secretary	0	0	0	1	186	9.0	44.6
5	Businesswoman	0	0	1	0	122	5.9	50.5
6	Farmer	1	1	1	0	121	5.9	56.3
7	Tailor	0	1	1	0	121	5.9	62.2
8	Craftslady	0	1	1	0	76	3.7	65.9
9	Nurse	0	0	1	1	71	3.4	69.3
10	Clerk	0	0	0	1	62	3.0	72.3

1970-99	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	"Housewife"	0	0	0	0	582	33.3	33.3
2	Housewife	0	0	0	0	202	11.6	44.9
3	Secretary	0	0	0	1	186	10.7	55.6
4	Teacher	0	0	1	1	150	8.6	64.2
5	Nurse	0	0	1	1	67	3.8	68.0
6	University student	0	0	1	0	58	3.3	71.3
7	Clerk	0	0	0	1	57	3.3	74.6
8	Typist	0	0	0	1	53	3.0	77.6
9	Tailor	0	1	1	0	48	2.8	80.4
10	Farmer	1	1	1	0	47	2.7	83.1

1960-99	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Teacher	0	0	1	1	210	19.2	19.2
2	Needleworker	0	1	0	0	207	18.9	38.1
3	Housewife	0	0	0	0	101	9.2	47.3
4	Tailor	0	1	1	0	99	9.0	56.4
5	Nurse	0	0	1	1	80	7.3	63.7
6	"Housewife"	0	0	0	0	73	6.7	70.3
7	Typist	0	0	0	1	44	4.0	74.3
8	Secretary	0	0	0	1	40	3.7	78.0
9	Midwife	0	0	1	1	37	3.4	81.4
10	Weaver	0	1	0	0	27	2.5	83.8

1950-59	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Tailor	0	1	1	0	841	47.7	47.7
2	Weaver	0	1	0	0	389	22.0	69.7
3	Teacher	0	0	1	1	160	9.1	78.8
4	Nurse	0	0	1	1	95	5.4	84.1
5	Matmaker	0	1	0	0	90	5.1	89.2
6	Farmer	1	1	1	0	64	3.6	92.9
7	Midwife	0	0	1	1	33	1.9	94.7
8	Basketmaker	0	1	0	0	32	1.8	96.5
9	Clerk	0	0	0	1	10	0.6	97.1
10	Typist	0	0	0	1	9	0.5	97.6

1940-49	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Weaver	0	1	0	0	645	49.8	49.8
2	Tailor	0	1	1	0	230	17.8	67.5
3	Matmaker	0	1	0	0	177	13.7	81.2
4	Teacher	0	0	1	1	112	8.6	89.8
5	Basketmaker	0	1	0	0	46	3.6	93.4
6	Nurse	0	0	1	1	31	2.4	95.8
7	Midwife	0	0	1	1	18	1.4	97.2
8	Gardener	0	1	1	0	13	1.0	98.2
9	"Housewife"	0	0	0	0	8	0.6	98.8
10	Dressmaker	0	1	1	0	4	0.3	99.1

1930-39	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Matmaker	0	1	0	0	369	36.9	36.9
2	Tailor	0	1	1	0	324	32.4	69.2
3	Weaver	0	1	0	0	87	8.7	77.9
4	Teacher	0	0	1	1	67	6.7	84.6
5	Basketmaker	0	1	0	0	54	5.4	90.0
6	"Housewife"	0	0	0	0	21	2.1	92.1
7	Farmer	1	1	1	0	18	1.8	93.9
8	Midwife	0	0	1	1	15	1.5	95.4
9	Seamstress	0	1	0	0	10	1.0	96.4
10	Gardener	1	1	1	0	8	0.8	97.2

1920-29	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Matmaker	0	1	0	0	220	35.8	35.8
2	Tailor	0	1	1	0	182	29.6	65.5
3	Basketmaker	0	1	0	0	100	16.3	81.8
4	"Housewife"	0	0	0	0	53	8.6	90.4
5	Farmer	1	1	1	0	31	5.1	95.4
6	Teacher	0	0	1	1	16	2.6	98.1
7	Trader	0	0	1	1	3	0.5	98.5
8	Nurse	0	0	1	1	2	0.3	98.9
9	University student	0	0	1	0	2	0.3	99.2
10	Midwife	0	0	1	1	1	0.2	99.4

1910-19	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Matmaker	0	1	0	0	253	48.3	48.3
2	Tailor	0	1	1	0	83	15.8	64.1
3	Farmer	1	1	1	0	70	13.4	77.5
4	Seamstress	0	1	0	0	42	8.0	85.5
5	Basketmaker	0	1	0	0	30	5.7	91.2
6	"Housewife"	0	0	0	0	13	2.5	93.7
7	Teacher	0	0	1	1	11	2.1	95.8
8	Cook	0	1	1	1	7	1.3	97.1
9	Clerk	0	0	0	1	4	0.8	97.9
10	Nurse	0	0	1	1	3	0.6	98.5

1900-09	Female Occupation	Agri.	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	Matmaker	0	1	0	0	124	57.7	57.7
2	Gardener	1	1	0	0	42	19.5	77.2
3	Farmer	1	1	1	0	17	7.9	85.1
4	Tailor	0	1	1	0	13	6.1	91.2
5	Basketmaker	0	1	0	0	12	5.6	96.7
6	Cook	0	1	1	1	3	1.4	98.1
7	"Housewife"	0	0	0	0	2	0.9	99.1
8	Teacher	0	0	1	1	2	0.9	100.0
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-

1895-99	Female Occupation	Skilled	Manual	Skilled	Waged	Freq.	Percent	Cum.
1	"Housewife"	0	0	0	0	509	96.0	96.0
2	Gardener	1	1	0	0	19	3.6	99.6
3	Farmer	1	1	1	0	2	0.4	100.0
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-